

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-7 (cancelled).

Claim 8 (currently amended): ~~The method of claim 7~~A method of determining a path from a source node to a destination node through a network, comprising:

grouping structures in a network into structure groups, wherein each structure group comprises at least two nodes;

determining virtual circuit information for each pair of nodes in said structure groups;

determining connections between said structure groups; and

determining a least cost path from said source node to said destination node using at least said virtual circuit information and connection information for said connections between said structure groups, wherein a cost is associated with each node in the network and with each link that connects a pair of nodes in the network, and wherein said least cost path determination considers the cost of the nodes and links visited on a path, and wherein the cost of a node is increased when a signal changes channels at said node, and wherein a link may be an express link or a local link, and the cost of an express link is less than the cost of a local link.

Claim 9 (currently amended): The method of claim ~~18~~, wherein said least cost path determination uses a Dijkstra algorithm.

Claim 10 (currently amended): The method of claim ~~18~~, wherein said least cost path may use SONET/SDH equipment, PDF equipment, and dense wavelength division multiplexing equipment.

Claims 11-15 (cancelled).

Claim 16 (currently amended): ~~The method of claim 14,~~ A method of planning a path through a network, comprising:

receiving a request for a path through a network of structure groups between a source node and a sink node;

determining virtual circuit information for each structure group in said network;  
and

determining a path through said network using said virtual circuit information,  
wherein the virtual circuit information includes the number of paths using a common channel through said structure group between any pair of nodes, and wherein a slot-edge matrix is maintained for each data structure, and wherein the availability of a channel is determined based on said slot-edge matrix.

Claim 17 (original): The method of claim 16, wherein said request also includes a time period requested, wherein a slot-edge matrix is maintained for various requestable time periods and wherein the availability of a channel is determined based on the slot-edge matrix for the time frame requested.

Claim 18 (currently amended): The method of claim ~~14~~16, wherein said virtual circuit information for each path through a structure group includes the number of nodes visited on said path.

Claim 19 (currently amended): The method of claim ~~14~~16, wherein said request includes the type of service desired, and wherein said step of determining a path through said network selects a path using the desired service type.

Claim 20 (original): The method of claim 19, wherein said type of service may be SONET service.

Claim 21 (currently amended): The method of claim ~~14~~16, wherein said network is a fiber-optic network.

Claim 22 (currently amended): The method of claim ~~14~~16, wherein said virtual circuit information includes two pseudo nodes for each group node.

Claim 23 (new): The method of claim 16, wherein nodes in said network may be connected by links, and wherein said virtual circuit information is determined using a data set containing information on the availability of channels in said links.

Claim 24 (new): The method of claim 23, further comprising the step of updating said data set to reflect that said path is no longer available.

Claim 25 (new): The method of claim 16, wherein said request includes the bandwidth desired, and wherein a path through a structure group is available only if a path having the desired bandwidth is available.

Claim 26 (new): The method of claim 8, wherein the structures in said structure groups have the same set of office locations.

Claim 27 (new): The method of claim 8, wherein said virtual circuit information includes information regarding whether a path using a common channel is available through said structure.

Claim 28 (new): The method of claim 27, wherein a path using a common channel between a pair of nodes having time division multiplexing capability is available when the same time slot is available throughout a path between said nodes.

Claim 29 (new): The method of claim 27, wherein a path using a common channel between a pair of nodes having wavelength division multiplexing capability is available when the same frequency is available throughout a path between said nodes.